

Substitute Specification

CLAIMS

I claim:

1. (Currently amended) High-speed centrifugal ventilation device for assisting a patient's respiratory function, the device comprising:

a centrifugal ventilator housed inside a casing and comprised of:

at least one wheel rotating at a speed driven by a driver and being equipped with a volute, and

channels circulating a gaseous flux, said channels being arranged inside said casing upstream and downstream of the ventilator, induction and discharge of said gaseous flux through openings of said casing for intake and expulsion respectively, said volute being integral part of said casing so as to form an integral fixed assembly; and

a flexible means intercalated between the fixed assembly and said driver, forming a dynamic assembly to prevent transmission of vibrations generated by said dynamic assembly towards the fixed assembly.

2. (Currently amended) Device as per claim 1, wherein the flexible intercalated means between the dynamic assembly and the fixed assembly is comprised of at least one mechanical spring, flexible material, or magnetic repulsion means.

3. (Currently amended) Device as per claim 2, wherein said flexible means is intercalated between the dynamic assembly and the fixed assembly for connection to each other, with the dynamic assembly being supported in suspension by the fixed assembly.

Substitute Specification

4. (Currently amended) Device as per claim 3, wherein said flexible means intercalated between the dynamic assembly and the fixed assembly comprise:

at least one first flexible element intercalated between said volute and the dynamic assembly, and

at least one second flexible element intercalated between the driver, at least at a base thereof, and said casing.

5. (Currently amended) Device as per claim 4, wherein the first and second flexible elements are comprised of:

connecting means between the fixed assembly and the dynamic assembly ; and

positioning means for the dynamic assembly inside said casing.

6. (Currently amended) Device as per claim 4, wherein the first and second flexible elements are comprised of elastomer material, said material having a hardness, volume and conformation providing the first and second flexible elements with resonance frequencies in a range of 10 Hz to 300 Hz.

7. (Currently amended) Device as per Claim 1, wherein said channels for gaseous flow inside said casing are lined with a mass of sound-absorbing material.

8. (Currently amended) Device as per Claim 1, wherein at least one channel, of said channels circulating gaseous flow arranged inside the casing upstream and downstream of the volute, is arranged around the driver, cooling said driver through a passage of gaseous flow in proximity of said driver.

Substitute Specification

9. (Currently amended) Device as per Claim 1, wherein at least one channel, of said channels circulating gaseous flow arranged inside the casing upstream and downstream of the volute, is organized in a form of a baffle.

10. (Currently amended) Device as per Claim 1, wherein at least one channel, of said channels circulating gaseous flow upstream and downstream of the volute, is arranged inside said casing by partitioning said casing with partitions, said partitions being recessed and attached in an inside space thereof through an intermediary of an impervious material, forming a seal against passage of acoustic waves.

11. (Currently amended) Device as per Claim 1, wherein said at least one wheel is comprised of material for low inertia in rotation.

12. (Currently amended) Device as per Claim 1, wherein said at least one wheel is equipped with a flange comprised of rigid low density foam, attached to the wheel by glueing.

13. (Currently amended) Device as per Claim 1, wherein said driver is equipped with sensors detecting angular position of a rotor.

14. (Currently amended) Device as per Claim 1, wherein said driver is comprised of a synchronous motor with permanent magnets at a rotor, without position sensors, operation thereof being put under dependence of electronic means with vectorial control of flow.

15. (Currently amended) Device as per Claim 1, further comprising:
two intakes of gaseous flux circulation, arranged in proximity of an evacuation orifice of said casing, one of said two intakes being intended to measure fluid pressure at an output of said

Substitute Specification

casing, a remaining one of said two intakes being intended to permit injection of oxygen to enrich a gaseous mixture which is delivered to a patient.

16. (Currently amended) Device as per claim 1, wherein each wheel is equipped with a volute.

17. (Currently amended) Device as per claim 1, wherein a single volute covers several wheels.